



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/544,121

08/02/2005

Martin Wedel

9342-72

8642

54414 7590 08/13/2007
MYERS BIGEL SIBLEY & SAJOVEC, P.A.
P.O. BOX 37428
RALEIGH, NC 27627

EXAMINER

KARACSONY, ROBERT

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

08/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/544,121

Applicant(s)

WEDEL ET AL.

Examiner

Robert Karacsony

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's arguments and amendments filed on July 18, 2007 have been received and entered in the case. Claims 1-23 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-3, 5-10, 13 and 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Nevermann (WO 02/35810, translation provided by US 6,980,157).

Nevermann teaches an integrated speaker carrier and antenna element for a communication terminal, comprising.

a sheet of a flexible film (1b) having a conductive first portion (col. 3/lines 57-58 discloses '1b' being conductive) forming a first antenna element (col. 3/lines 57-58), and an elongated second portion (15) carrying a conductive lead (col. 4/lines 28-32), the elongated second portion including an inner end (end of '15' where '17' is located) that is adjacent to the conductive first portion (fig. 5) and an outer end (end of '15' where '18' is located) that is connected to a speaker (earpiece, col. 3/lines 32-35), such that the elongated second portion extends away from the conductive first portion (fig. 5 illustrates the '15' on top of '1b', which therefore must be raised from '1b', thus, interpreted to be extending away from '1b') and the inner end of said elongated second portion (fig. 5 illustrates '15' extending away from '17');

wherein said elongated second portion is bent (fig. 5) such that said speaker and said outer end of said elongated second portion are positioned at an aperture (6) in said first portion.

Claim 2: Nevermann teaches said second portion carries a pair of conductive leads (15) from adjacent said first portion to respective speaker connection pads (18) at said outer end.

Claim 3: Nevermann teaches said second portion carries at least one conductive lead (15), which is electrically insulated (fig. 5 illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly) from said first portion.

Claim 5: Nevermann teaches said conductive lead extends from a connection pad (17) arranged adjacent to said first portion (fig. 5) at a straight edge (fig. 2, bottom edge of '1b' between '7' and '8') of said flexible film.

Claim 6: Nevermann teaches said conductive first portion is a ground plane of an antenna for a radio communication terminal (col. 4/lines 12-14).

Claim 7: Nevermann teaches said conductive first portion is an antenna element (col. 3/lines 7-15) of an antenna for a radio communication terminal, and has a pattern adapted to provide resonance at predetermined radio frequencies (col. 3/lines 57-62).

Claim 8: Nevermann teaches a support structure (20) carrying (fig. 2) a second antenna element (1a), is arranged at a predetermined distance (distance between left end of '1b' and a point on '20' equaling the distance between '1a' and '1b') from said first antenna element.

Claim 9: Nevermann teaches said flexible film is attached to said support structure (fig. 2) such that said conductive first portion is electrically connected to a ground plane of said support structure (col. 4/lines 12-14).

Art Unit: 2821

Claim 10: Nevermann teaches said flexible film is attached at a side edge (bottom edge of '1b' between '7' and '8') thereof to said support structure (fig. 2), at which a side edge (outer circular edge of '17') of a connector pad (17) to said conductive lead is arranged (fig. 2).

Claim 13: Nevermann teaches an insulating spacer (11) is arranged intermediate said support structure and said flexible film (fig. 2 illustrates left end of '11' arranged intermediate '20' and '1b'), defining said predetermined distance between said first and second antenna elements (fig. 2).

Claim 18: Nevermann teaches said support structure is a printed circuit board of a radio communication terminal (col. 4/lines 4-6).

Claim 19: Claim 19 is considered a suggested use limitation and is not given any patentable weight. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Aisenbrey (US 6,741,221).

Claim 4: Nevermann teaches all of the limitations of claim 1, as discussed above.

Nevermann fails to teach said flexible film is made from an insulating material, and wherein said first conductive portion and said lead form parts of a layer of a conductive material coated on said flexible film. However, Aisenbrey teaches forming antennas by loading conductive loaded based resin in an insulative structural resin (col. 3/lines 21-34) because it reduces costs in the fabrication process as well as manufacturing processes (col. 3/lines 3-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the antennas of Aisenbrey as the antennas of Nevermann in order to have reduced the costs in the fabrication process as well as manufacturing processes.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize said first conductive portion and said lead form parts of a layer of a conductive material (both are conductive) coated on said flexible film ('1b' would be loaded into the structural resin and said lead would lay on top of '1b').

Claim 20 : Nevermann teaches a method of manufacturing an integrated speaker carrier and antenna element for a communication terminal, comprising:

providing a flexible film (1b) , having a first conductive surface portion (col. 3/lines 57-58 discloses '1b' being conductive), and an elongated second portion (15) having an inner end (end of '15' where '17' is located) adjacent to said first portion (fig. 5 illustrates '15' adjacent to '1b'), said elongated second portion carrying a lead (col. 4/lines 28-32) insulated from said first portion (fig. 5 illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly) and extending away from the first conductive surface portion (fig. 5 illustrates the '15' on top of '1b', which therefore must be raised from '1b', thus,

Art Unit: 2821

interpreted to be extending away from '1b') and the inner end of said elongated second portion (fig. 5 illustrates '15' extending away from '17') adjacent to said first portion (fig. 5 illustrates all of '15' adjacent to '1b') to an outer end (end of '15' where '18' is located) of said elongated second portion;

attaching a speaker (earpiece, col. 3/lines 32-35) to said outer end of the elongated second portion, connected to said lead (the functionality of the earpiece requires that the earpiece to be attached to said outer end of the elongated second portion, connected to said lead);

forming an aperture (6) in said first portion; and

bending the elongated second portion (fig. 5 illustrates '15' bending) such that said speaker and said outer end of the elongated second portion are positioned at the aperture (fig. 5 illustrates '18' which is where the earpiece is to be attached positioned at the aperture).

Nevermann fails to teach the flexible film is of an insulating material. However, Aisenbrey teaches forming antennas by loading conductive loaded based resin in an insulative structural resin (col. 3/lines 21-34) because it reduces costs in the fabrication process as well as manufacturing processes (col. 3/lines 3-7). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the antennas of Aisenbrey as the antennas of Nevermann in order to have reduced the costs in the fabrication process as well as manufacturing processes.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Phillips et al. (US 6,297,778, hereinafter Phillips).

Claim 11: Nevermann teaches all of the limitations of claim 10, as discussed above.

Nevermann fails to teach said connector pad is connected, at said side edge thereof, to speaker

control circuitry arranged on said support structure. However, Phillips teaches arranging speaker control circuitry on a printed circuit board of a cordless communication device (col. 3/lines 19-22). By this arrangement, one with ordinary skill in the art would realize a reduction in space requirements needed for the internal components of a portable device, which is being demanded by the manufacturing of portable devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Phillips with the invention of Nevermann in order to have located the speaker control circuitry on the same PCB of Nevermann, which would have saved space.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize said connector pad is connected, at said side edge thereof, to speaker control circuitry (the pads '17' are connected to the speaker control circuitry) arranged on said support structure.

6. Claims 12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Gunee et al. (US 2001/0052879, hereinafter Gunee) and Phillips.

Claim 12: Nevermann teaches all of the limitations of claim 8, as discussed above, as well as said conductive first portion being electrically connected to a ground plane of said support structure at said straight edge (fig. 2, col. 4/lines 12-14). Nevermann fails to teach said flexible film is bar soldered at a straight edge to said support structure. However, Gunee teaches that it is less costly to solder an antenna onto printed circuit boards [0003]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have soldered the antenna of Nevermann onto the printed circuit board, as taught by Gunee, in order to have reduced the cost.

Nevermann also fails to teach a connector pad to said conductive lead is connected to speaker control circuitry arranged on said support structure.

Nevermann also fails to teach a connector pad to said conductive lead is connected to speaker control circuitry arranged on said support structure. However, Phillips teaches arranging speaker control circuitry on a printed circuit board of a cordless communication device (col. 3/lines 19-22). By this arrangement, one with ordinary skill in the art would realize a reduction in space requirements needed for the internal components of a portable device, which is being demanded by the manufacturing of portable devices. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the teachings of Phillips with the invention of Nevermann in order to have located the speaker control circuitry on the same PCB of Nevermann, which would have saved space.

If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize a connector pad (17) to said conductive lead is connected to speaker control circuitry (the pads '17' are connected to the speaker control circuitry) arranged on said support structure.

Claim 16: Nevermann teaches all of the limitations of claim 13, as discussed above. Nevermann fails to teach said spacer is attached to said support structure by cooperating engagement members. However, Gunee teaches attaching an antenna to a PCB using an antenna connector that allows for easy removal [0007], which is desired for mobile phones [0003]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the attaching means of Gunee as the cooperating engagement members of Nevermann in order to have easily removed the antenna.

Claim 17: Nevermann teaches all of the limitations of claim 13, as discussed above.

Nevermann fails to teach said spacer has a protruding member engaging with a recess in said support structure. However, Gunee teaches connecting an antenna by engaging protrusions (48) in an antenna connector with recesses (49) in a PCB (fig. 6) in order to increase the attaching force between the antenna and the PCB [0031]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the attaching means of Gunee with the invention of Nevermann in order to have increase the attaching force between the antenna and the PCB.

7. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Yamamori (JP 2002028287 A).

Claim 14: Nevermann teaches all of the limitations of claim 13, as discussed above.

Nevermann fails to teach said spacer comprises speaker attachment means, devised to secure said speaker adjacent to said aperture. However, Yamamori discloses a means to attach a speaker, which allows for easy and reliable attachment (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the spacer of Nevermann with the speaker attachment means of Yamamori in order to have easily and reliably attached the speaker adjacent to said aperture.

Claim 17: Nevermann teaches all of the limitations of claim 13, as discussed above.

Nevermann fails to teach said spacer has a protruding member engaging with a recess in said support structure. However Yamamori teaches a means of attachment, which involves inserting protrusions into holes, which allows for easy and reliable attachment (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

have combined the attachment means of Yamamori with the spacer and support structure for Nevermann in order to have easily and reliably attached the two components.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Moren et al. (2002/0000940, hereinafter Moren).

Claim 15: Nevermann teaches all of the limitations of claim 13, as discussed above. Never fails to teach said flexible film is attached to said spacer with an adhesive. However, Moren teaches attaching an antenna using an adhesive to the back of the housing of a radio communication device [0063] because it is easy to mount [0005]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have attached the flexible film of Nevermann to the said spacer, as taught by Moren, in order to have easily mounted the antenna.

9. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nevermann in view of Aisenbrey as applied to claim 20 above, and further in view of Rudisill et al. (US 6,208,874, hereinafter Rudisill) and Jo et al. (US 2003/0156065, hereinafter Jo).

Claim 21: Nevermann in view of Aisenbrey teaches all of the limitations of claim 20, as discussed above. Nevermann and Aisenbrey both fail to teach:

coating said insulating film with a conductive material;

removing selected portions of the conductive material from the film, to define the first conductive surface portion and the lead; and

cutting the film such that the elongated second portion thereof, carrying said lead, is shaped.

However, Rudisill teaches a method of manufacturing speaker traces and antennas by first plating a surface and then photo etching the plated surface to form the speaker traces as well as the antennas (col. 14/lines 38-40). Ease of manufacture and low fabrication cost would be obtained by plating and then etching to obtain the antenna ([0006] of Jo). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Rudisill and Jo with the invention of Nevermann in order to have obtained ease of manufacture and low fabrication cost.

Claim 22: Nevermann in view of Aisenbrey, Rudisill and Jo teach all of the limitations of claim 21, as discussed above. Nevermann fails to teach removing selected portions of the conductive material comprises etching. However, Rudisill teaches removing selected portions of the conductive material comprises etching (col. 14/lines 38-40). For the reasons discussed above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Rudisill and Jo with the invention of Nevermann in order to have obtained ease of manufacture and low fabrication cost.

Claim 23: If the modifications to the invention of Nevermann were made, as discussed above, one with ordinary skill in the art would realize removing selected portions of the conductive material comprises defining a pair of separate leads (fig. 5 of Nevermann, 15) insulated from said first portion (fig. 5 of Nevermann illustrates conductive lead '15' separated from conductive area '1b', thus being insulated so as to function properly) and extending away from adjacent to said first portion (fig. 5 illustrates '15' extending away from adjacent to said first portion).

Response to Arguments

10. Applicant's arguments filed July 18, 2007 have been fully considered but they are not persuasive.

11. Regarding the arguments on page 3, lines 5-8 of the Remarks, examiner notes that conductive pattern '15' does in fact extend away from conducting area '1b', as recited in the claims. As can be seen from fig. 5 of Nevermann, conducting pattern '15' on top of conducting area '1b', which therefore means that '15' must be raised from '1b', thus, interpreted to be extending away from '1b'.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Karacsony whose telephone number is 571-270-1268. The examiner can normally be reached on M-F 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RK *RK*

/Hoang V Nguyen/
Primary Examiner